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ABSTRACT

Although classroom "openness" has been much discussed in recent years, there has been little effort to investigate to what degree this openness occurs within a general sample of classrooms. The purpose of this study is to identify significant attributes of classroom activity and organization relevant to the concepts of "traditional" and "open" and to see whether these attributes can be used to derive meaningful classroom types. Fifty fourth-grade public school classrooms in Montgomery County, Maryland were observed eight times for specific behavioral categories referring to general organization and activity, teacher behavior, student behavior, and classroom atmosphere. Results indicate that there are three basic classroom types of approximately equal numbers. The first type was characterized as "open" and included elements of student autonomy, individualized student-teacher interaction, emphasis on student creativity and involvement, and a warm, friendly atmosphere. The second, more traditional classroom type was characterized by tight teacher control, little student autonomy, cold and critical atmosphere, and an emphasis on individual work on convergent tasks. The third classroom type was a combination of the open and traditional where teachers stimulated student interest by their own relatively flamboyant classroom performance. (Author/DE)

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CLASSROOM DIMENSIONS AND CLASSROOM TYPES

by

Arthur J. Kendall and Daniel Solomon

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Paper presented at the annual meeting of the American Psychological Association, Chicago, August 1975.

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Classroom Dimensions and Classroom Types

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Although classroom "openness" has been much discussed in recent years, usually considered to represent a special and unusual set of characteristics, there has been little effort, until recently, to investigate such classrooms empirically or to determine whether and to what degree these characteristics occur within the general run of classrooms. While basic characteristics of openness have been suggested by a few writers, it remains to be determined whether these characteristics actually differentiate between classrooms in their naturally-occurring variation.

The purpose of the present study was to identify significant attributes of classroom activity and organization relevant to the concepts of "traditional" and "open," and also to see whether these attributes can be used to derive meaningful classroom "types." Since we hoped to get some idea of the "natural" occurrence of these attributes and types, a broad range of classrooms was selected for the study, not just those preselected as "traditional" or "open."

After a period of training with the aid of videotaped class sessions, a series of visits was made to 50 fourth grade public school classrooms in Montgomery County, Maryland. There were eight observers, each of whom made one visit to each of the classrooms. Each classroom was thus visited eight times; these visits ranged between October and May, were separated by about three weeks, and were approximately balanced between mornings and afternoons and between different days of the week. The observers used a structured "sign" system with which to observe a large number of specific behavioral categories referring to general organization

and activity, teacher behaviors and student behaviors. They watched the class for a period of five minutes, then tallied each category which had occurred at least once during that period; when the tallying was completed, a new period of observation began. This was repeated for six consecutive observation periods. The observers also recorded information about physical characteristics of the classroom setting, and, at the conclusion of the visit, made a series of global ratings concerning the general classroom atmosphere and activities, teacher behavior and student behavior. Near the end of the school year, each of the participating teachers filled out a questionnaire in which they described the typical classroom activities, their own role in the classroom, and the kinds of student activities which they promoted and/or expected.

Reliability of the classroom observation categories and ratings was assessed by intra-class correlation. Contrary to what is often reported, reliability was generally better for the global ratings than for the observation categories. After the elimination of items with very low reliabilities or low frequencies of occurrence, and the development of some across-item summed scales, a series of factor analyses was done, with sums across the eight observation visits to each classroom as the basic data. Seven factor analyses were conducted with the observation data; one each for the general classroom description items, classroom organization items, teacher activity items, student activity items, student behavior ratings, classroom atmosphere ratings, and teacher behavior ratings. In addition, the classroom descriptions from the teacher questionnaire were also factor analyzed.

A total of 33 factors were derived from these analyses. After oblique rotations, they were interpreted as representing the following qualities and characteristics:

Observers' classroom descriptions. These items produced five factors, which were interpreted as representing, 1) "physical openness, accessibility of material and equipment to students;" 2) "student-made vs. commercial wall decorations;" 3) "extra-curricular stimuli (plants, animals, signs, etc.);" 4) "ungradedness of class," and 5) "number of children and adults in space."

Classroom organization items. Three factors emerged from these items, called, 1) "common vs. varied simultaneous activities;" 2) "unusual 'fun' activities;" 3) "disruptive vs. smooth shifting of activities."

Teacher activity items. These produced five factors: 1) "teacher hostility, annoyance, criticism;" 2) "encouragement of active, academic student participation;" 3) "teacher interaction with individuals or subgroups vs. total class;" 4) "teacher personal expression, warmth, friendliness;" 5) "teacher encouragement of student expressiveness and exploration vs. drilling."

Student activity items. These also produced five factors: 1) "inter-student cooperation, friendly interaction while working;" 2) "general student disruptiveness, hostility;" 3) "attentive, responsive work under teacher direction;" 4) "student-initiated interaction with teacher;" 5) "student independent, autonomous activity."

Student ratings. Three factors resulted from this analysis: 1) "students controlled, compliant, orderly vs. independent, autonomous, varied;" 2) "eager involvement, interest vs. uninvolvement, boredom;" 3) "engaged in divergent vs. convergent tasks."

Classroom atmosphere ratings. These also produced three factors: 1) "relaxed, friendly, accepting vs. tense, hostile, rejecting;" 2) "calm, orderly task orientation vs. excited, unruly spontaneity;" 3) "diversity, variety vs. repetitiveness, commonality."

Teacher ratings. This analysis produced five factors: 1) "coldness, criticism vs. warmth, praise;" 2) "lethargy, dryness, vs. energy, flamboyance;" 3) "teacher control, dominance vs. permissiveness, encouragement of student autonomy;" 4) "individual attention, consultative role;" 5) "emphasis on student comprehension, exploration vs. memory, rote."

Teachers' classroom descriptions. Four factors resulted from the analysis of the teacher questionnaire items: 1) "teacher sole control, decision-making vs. student autonomy, participation in decisions;" 2) "individualization, flexibility vs. nondifferentiation, inflexibility;" 3) "self-containedness vs. departmentalization;" 4) "restrictiveness vs. nonrestrictiveness."

Factor scores were derived for each of the above 33 factors, representing the position of each classroom on each dimension. A new factor analysis was then done on these factor scores. (This procedure can be considered analogous to factoring empirically-derived scales, as is frequently done in personality research). This analysis produced six factors which, after orthogonal rotation, were given the following interpretations:

1) "Warmth, friendliness, involvement, interest, vs. coldness, hostility, boredom." The factors with highest loadings were "teacher hostility, annoyance" (negative), "eager student involvement and interest," "classroom relaxed and friendly" and "teacher warmth, praise."

2) "Teacher control, orderly task orientation, restrictiveness vs. teacher permissiveness, spontaneity, student autonomy and freedom." The highest loadings were for "calm, orderly task orientation," "teacher control, dominance," "student disruptiveness" (negative loading), and "student compliance, orderliness."

3) "Common, repetitive activities, vs. varied simultaneous activities."

There were high loadings for "common vs. varied simultaneous activities," "student independent, autonomous activity" (negative), and "diversity vs. repetitiveness" (negative).

4) "Individualization." The highest loadings were obtained for "student-initiated interaction with teacher," "teacher individual attention, consultative role," and "teacher interaction with individuals or subgroups, vs. total class."

5) "Attentive, active, academic participation, under teacher direction." There were two factors with very high loadings: "attentive, responsive work under teacher direction" and "teacher encouragement of active, academic student participation." "Teacher energy" was also a strong contributor to this factor.

6) "Emphasis on student expressiveness, exploration, and creativity." This interpretation followed from high or moderate loadings for "teacher encouragement of student expressiveness, exploration vs. drilling," "divergent tasks vs. convergent tasks," and "emphasis on student comprehension, exploration vs. memory, rote."

Next, another approach was taken to the same data in order to identify "types" of classrooms. A clustering procedure described by Overall and Klett (1972) was applied to the 50 classrooms on the basis of their profiles on the 33 first-order factor scores. The purpose of this procedure is to produce homogenous groups which are distinct from one another. The character of the resulting groups can be determined by examining their mean scores on each of the factors. Three clusters were produced with this procedure, representing from 14 to 18 classrooms. As an independent validation of the cluster assignments, a discriminant function analysis was applied to these three clusters. The two resulting discriminant functions were each highly significant, and each class's cluster assignment was indicated, by the discriminant function procedure, to be clearly the most appropriate

one. Twenty-five of the 33 factors significantly differentiated between the three clusters (by univariate F test), 13 at $p < .001$; another 8 at $p < .01$. There was no overlap of the clusters in the discriminant space. Following are descriptions of the three obtained clusters:

Cluster One. Classes in this cluster were characterized by student autonomy and freedom to move around and talk, a warm, friendly atmosphere, individualized student-teacher interaction with a consultative role for teachers, an emphasis on student comprehension and creativity, varied simultaneous activities, inter-student cooperation, and a general air of involvement and interest. Classes in this cluster tended to have accessible materials and equipment and were likely to be ungraded. This combination of attributes seems close to many of the anecdotal descriptions of open classrooms to be found in the literature.

Cluster Two. The profile of classroom means obtained for this cluster is very different from that found for cluster one. These classes were under tight teacher control, with little autonomy for the students. The atmosphere tended to be cold, critical, and somewhat rejecting. The teachers were generally undramatic, and emphasized compliant, individual work on convergent tasks. The general impression conveyed is of a rather austere and autocratic classroom setting.

Cluster Three. In some respects the profile for this cluster is intermediate between the other two. The means representing warmth and friendliness versus coldness and hostility were moderate, as were those referring to teacher control versus student autonomy. Some of the other means, however, were at more extreme points: Activities in these classes tended to be done by all students in common, teachers tended to be dramatic and energetic, were personally expressive, and encouraged students' active academic participation. The teachers took a very active role in these classes, but without the individualized interaction characteristic of cluster one. They appear to have attempted to stimulate the children's active

participation in strictly academi. activities by their own, relatively flamboyant "performance."

While clusters two and three both would seem to represent types of "traditional" or "teacher-centered" classrooms, the methods by which the classes are directed are quite distinct. To put it briefly, teachers in cluster two appear to direct by command, while those in cluster three do so by persuasion and example. By contrast with both of these, a much greater role in classroom (and individual) direction is played by the children in cluster one classrooms.

These three classroom types accord well with some of the descriptions of open vs. traditional education, and also with some of the more general descriptions of classroom atmospheres, group atmospheres, and leadership styles. While they do not correspond precisely with the classic "autocratic," "democratic," and "laissez faire" atmospheres of Lewin, Lippitt, and White, they do seem to represent only slightly different combinations of some of the same elements.

The six obtained second-order factors are also comparable with other attempts to identify basic dimensions of behavioral styles and group atmospheres (including classrooms, families, occupational groups, etc.). The first two factors found here are basically the same two which have been found centrally in many of these other investigations--"warmth vs. coldness" and "control vs. permissiveness." Some of the other factors found here seem more specifically limited to educational settings; i.e., commonality of activities, individualization, emphasis on student expressiveness, and academic participation. With the exception of "warmth," all of these dimensions seem relevant to the distinction between open and traditional education, as presented in numerous previous discussions. The present findings indicate that such dimensions can discriminate more generally among a broad range of classrooms, not just those at the "open" and "traditional" extremes.

In further analyses, we are investigating the effects of these classroom types and classroom dimensions on measures of various outcomes, including their main effects and their interactions with individual child characteristics and child "types."